REMARKS

Entry of the foregoing amendments and reconsideration of this application is respectfully requested. By this amendment, Claims 1, 10, and 18 have been amended to more specifically set forth the invention. New Claims 26 and 27 have been added. Claims 1 through 27 remain in the application. Reconsideration is respectfully requested.

35 U.S.C. 102 Rejections

Claims 1 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Gilliland et al. (U.S. 5,815,623). *The applicants respectfully traverse this rejection.*

Claims 1, 6, 8-10, 15, 17, 18, 23, and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Jewell et al. (U.S. 5,940,564). *The applicants respectfully traverse this rejection.*

The applicants respectfully point out that it is desirable to form an optical-electrical module which is easy to align the various optical components included therein. For example, with reference to FIG. 2 in the instant application, it is desirable to optically align optical fiber 14 with laser 45. Further, it is desirable to achieve the optical alignment so that the optical-electrical module may be manufactured in an inexpensive manner.

With this in mind, the applicants respectfully point out that Gilliland et al. teach a single ball lens 412 as illustrated in FIG. 6A to optically align optical waveguide 404 with optical device 418. However, the applicants teach in

the instant application the use of an elongated radially symmetric lens assembly with a central opening where the lens assembly is frictionally engaged in the ferrule along the optical axis to optically align optical fiber 14 and laser 45.

The applicants believe that the alignment between optical fiber 14 and laser 45 is difficult to achieve in a manufacturing environment, so the use of the elongated radially symmetric lens assembly with the central opening increases the alignment tolerance in optical-electrical module 10. It should be understood that the elongated radially symmetric lens assembly frictionally engages in inner periphery of the ferrule to provide more stable and accurate alignment as discussed on Page 9, Lines 23-25 and Page 10, Lines 1-8 of the specification.

In regard to Jewell, the applicants respectively point out that Jewell teaches a two lens system using ball or spherical lenses (See Figure 3 in Jewell, Elements 18 and 20). However, Jewell does not teach, suggest, or disclose a lens assembly with a central opening as disclosed by the applicants.

In view of Gilliland et al. and Jewell, the applicants have amended independent Claims 1, 10, and 18 to more specifically point out the instant invention. For example, the applicants have added the limitation in Claim 1 that the lens assembly includes an elongated radially symmetric lens assembly with a central opening where the lens assembly is frictionally engaged in the ferrule along the optical axis. The elongated radially symmetric lens assembly is illustrated in FIG. 2 (Element 36) and discussed on Page 9, Lines 23-25 and Page 10, Lines 1-8 of the specification. Similar amendments have been made to independent Claims 10 and 18. The applicants respectfully point out that no new matter has been added to independent Claims 1, 10, or 18.

Hence, the applicants believe that Gilliland et al. do not disclose, teach, or suggest forming an optical-electrical module with an elongated radially symmetric lens assembly with a central opening where the lens assembly is frictionally engaged in the ferrule along the optical axis and, consequently, do not teach every element of the applicants' device. Thus, the applicants believe that the Examiners 102(b) rejection of Claim 1 in view of Gilliland et al. has been overcome.

Further, the applicants believe that Jewell does not disclose, teach, or suggest forming an elongated radially symmetric lens assembly with a central opening where the lens assembly is frictionally engaged in the ferrule along the optical axis and, consequently, does not teach every element of the applicants' device. Thus, the applicants believe that the Examiners 102(b) rejection of Claims 1, 10, and 18 in view of Jewell has been overcome.

In regard to Claim 8, the applicants believe that the amendments to Claim 1 overcome this rejection. Thus, the applicants believe that the Examiners 102(b) rejection of Claim 8 in view of Gilliland et al. has been overcome.

In regard to Claims 6, 8-9, 15, 17, 23, and 25, the applicants believe that the amendments to Claims 1, 10, and 18 overcome this rejection. Thus, the applicants believe that the Examiners 102(b) rejection of Claims 6, 8-9, 15, 17, 23, and 25 in view of Jewell has been overcome.

35 U.S.C. 103 Rejections

Claims 2-4, 7, 11-13, 16, 19-21, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jewell (U.S. 5,940,564). *The applicants respectfully traverse this rejection.*

Claims 2-4, 9-13, 17-21, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gilliland et al. (U.S. 5,815,623). *The applicants respectfully traverse this rejection.*

As discussed above in regard to the 35 U.S.C. 102(b) rejections, the applicants have amended independent Claims 1, 10, and 18 to more specifically point out the instant invention. For example, Claim 1 has been amended to include a limitation that the lens assembly includes an elongated radially symmetric lens assembly with a central opening where the lens assembly is frictionally engaged in the ferrule along the optical axis. The elongated radially symmetric lens assembly is illustrated in FIG. 2 (Element 36) and discussed on Page 9, Lines 23-25 and Page 10, Lines 1-8 of the specification. Similar amendments have been made to Claims 10

and 18. The applicants respectfully point out that no new matter has been added to independent Claims 1, 10, or 18.

Further, the applicants respectfully point out that neither Jewell nor Gilliland et al. suggest modifying their teachings to form an elongated radially symmetric lens assembly with a central opening where the lens assembly is frictionally engaged in the ferrule along the optical axis (See MPEP 2143.01, for example) as is disclosed in the current invention. Further, if an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious (See MPEP 2143.03).

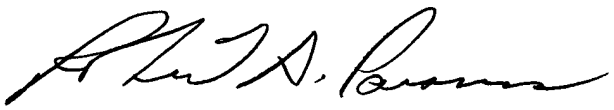
Thus, the applicants believe that the Examiners 103(a) rejection of Claims 2-4, 7, 11-13, 16, 19-21, and 24 in view of Jewell has been overcome. Further, the applicants believe that the Examiners 103(a) rejection of Claims 2-4, 9-13, 17-21, and 25 *in view of Gilliland et al. has been overcome. Therefore, the applicants believe that Claims 1 through 25 are now in condition for allowance.*

The applicants acknowledge the Examiner's allowance of Claims 5, 14, and 22 if rewritten in independent form including all of the limitations of the base claim and any intervening claims. However, as discussed above, the applicants believe that the amendments to Claims 1, 10, and 18 put Claims 1 through 27 in condition for allowance.

SUMMARY

Thus, the applicants believe that Claims 1 through 27 are now in condition for allowance. Claims 1, 10, and 25 have been amended to more specifically set forth the instant invention. New Claims 26 and 27 have been added. The amendments introduce no new matter into this application. The applied references do not disclose, teach, or suggest forming an elongated radially symmetric lens assembly with a central opening where the lens assembly is frictionally engaged in a ferrule along an optical axis as disclosed by the applicants and, therefore, cannot anticipate or make obvious the present invention. Therefore, the applicants believe that the subject application is now in condition for allowance. Notice to that effect is respectfully requested.

Respectfully requested,



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ADDENDUM

Marked-up Copy of the Amended Claims

1. (Amended) A radially symmetrical optoelectric module comprising:

a symmetrical ferrule defining an axial opening extending along an optical axis and having first and second ends positioned along the optical axis, the ferrule being formed radially symmetrical about the optical axis;

an elongated radially symmetric lens assembly with a central opening, the lens assembly being engaged in an inner periphery of the ferrule and along the optical axis;

the first end of the ferrule being formed to receive an optical fiber such that an end of the optical fiber is positioned along the optical axis and adjacent the elongated radially symmetric lens assembly and light passing through the optical fiber is acted upon by the elongated radially symmetric lens assembly; and

an optoelectric device affixed to the second end of the ferrule so that light traveling along the optical axis appears at the optoelectric device.

10. (Amended) A radially symmetrical optoelectric module comprising:

a receptacle assembly including a symmetrical ferrule and [a first lens]an elongated radially symmetric lens assembly, the ferrule defining an axial opening extending along an optical axis and having first and second ends positioned along the optical axis, the ferrule being formed radially symmetrical about the optical axis, the [first lens]elongated radially symmetric lens assembly being engaged in the ferrule along the optical axis, and the first end of the ferrule being formed to receive an optical fiber such that an end of the optical fiber is positioned along the optical axis and adjacent the first lens with light passing through the optical fiber being acted upon by the [first lens]elongated radially symmetric lens assembly; [and]

the elongated radially symmetric lens assembly including a central opening with a first lens integrally formed in the central opening and radially outwardly projecting ribs in an outer periphery of the elongated radially symmetric lens assembly; and

an optoelectric package including an optoelectric device and a second lens positioned adjacent the optoelectric device, the second lens being mounted along the optical axis by the optoelectric package, and the optoelectric package

being affixed to the second end of the ferrule so that light traveling along the optical axis appears at the optoelectric device and passes through the second lens.

18. (Amended) A radially symmetrical optoelectric module comprising:

a tubularly shaped ferrule with an axially extending central opening defining an optical axis, the ferrule being radially symmetric about the optical axis, and a first end of the ferrule constructed to receive an end of an optical fiber engaged therein;

an elongated radially symmetric lens assembly including a central opening with a first lens integrally formed in the central opening and radially outwardly projecting ribs extending from an outer periphery of the elongated radially symmetric lens assembly[first lens], the elongated radially symmetric lens assembly being mounted in the ferrule along the optical axis and positioned to be adjacent the end of the optical fiber; and

an optoelectric package including a second lens and an aligned optoelectric device, the optoelectric package being affixed to a second end of the ferrule opposite the first end with the second lens positioned along the optical axis.